

22. A heat pipe comprising:

an elongated enclosed volume defined by a wall having a first end and a second end, at least a portion of said wall comprising diamond, said wall located proximate to at least one of said first end and said second end; and

a cooling fluid disposed in said elongated enclosed volume and having a liquid phase and a vapor phase within said elongated enclosed volume.

23. The heat pipe of claim 22 further comprising a capillary mass disposed in said elongated enclosed volume between said first end and said second end.

24. The heat pipe of claim 22 wherein said at least a portion of said wall comprising diamond is configured to transfer thermal energy to said cooling fluid.

25. The heat pipe of claim 22 wherein said at least a portion of said wall comprising diamond is configured to transfer thermal energy from said cooling fluid.

26. The heat pipe of claim 22 wherein said wall is a solid slab of diamond configured to be mountable to said elongated enclosed volume.

27. A heat pipe comprising:

*d. selva* a rigid plenum having a vaporization region coupled to a condensation region through a center section;

a diamond wall defined in at least one of said vaporization region and said condensation region;

a capillary mass configured for fluid flow disposed in said rigid plenum between said vaporization region and said condensation region; and

a cooling fluid disposed in said rigid plenum, said cooling fluid having a liquid phase and a vapor phase within said rigid plenum.

28. The heat pipe of claim 27 wherein said diamond wall is configured to transfer thermal energy to said cooling fluid in said vaporization region.

29. The heat pipe of claim 27 wherein said diamond wall is configured to transfer thermal energy from said cooling fluid in said condensation region.

30. The heat pipe of claim 27 wherein said diamond wall is configured to be mountable to said rigid plenum.

31. The heat pipe of claim 27 wherein said diamond wall is configured to provide lateral heat spreading of hot spots.

32. The heat pipe of claim 27 wherein said rigid plenum is entirely comprised of diamond.

33. The heat pipe of claim 27 wherein said diamond wall is a solid slab of diamond.

34. The heat pipe of claim 27 wherein said diamond wall is a portion of said rigid plenum.

35. The heat pipe of claim 27 wherein said diamond wall is metallized and is attached to said rigid plenum with solder.